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Explorer sheds light on glories of the cave world

Uncovering the mystery of what lies below the surface has given a former reporter another domain to discover

By YANG FEIYUE

What is underneath our feet can often captivate us as much as that which is in plain sight. This was certainly the case as a love of adventure led a former news reporter to follow a career of spelunking — the exploration and study of caves.

Zhou Yuanjie has explored more than 40 caves in Guizhou province, recording these expeditions through more than 40,000 pictures and 1,200 minutes of video.

The 33-year-old Guizhou resident's photos and videos have brought to light the extraordinary beauty hidden underground.

Mr Zhou's passion for the fascinating world of caves was sparked when, in 2012, as a journalist of a local newspaper, he covered a team on a search and rescue mission to find someone who had accidentally fallen down a naturally-formed rock shaft in neighbouring Yunnan province.

"It was the first time my eyes were opened to the dark world under my feet, and I felt all of my previous life experiences completely dwarfed," Mr Zhou said of his awakening.

The shaft was more than 200 metres (656 feet) long and, as his helmet's light reflected off the geological wonder, it took his breath away.

"I felt my sense of time, direction, familiarity and comfort all vanish," he said.

In one of those quirks of fate that can change lives, Mr Zhou, who lives in Guiyang, capital of Guizhou, found out that he lived close to the search team's leader. So he began to learn from him about this underground world and the skills necessary to navigate it.

"I spent practically all of my energy after work focusing on spelunking," Mr Zhou said.

He learned how to use rope to climb cliffs, how to snorkel and how to paraglide before he joined professional cave exploration teams.

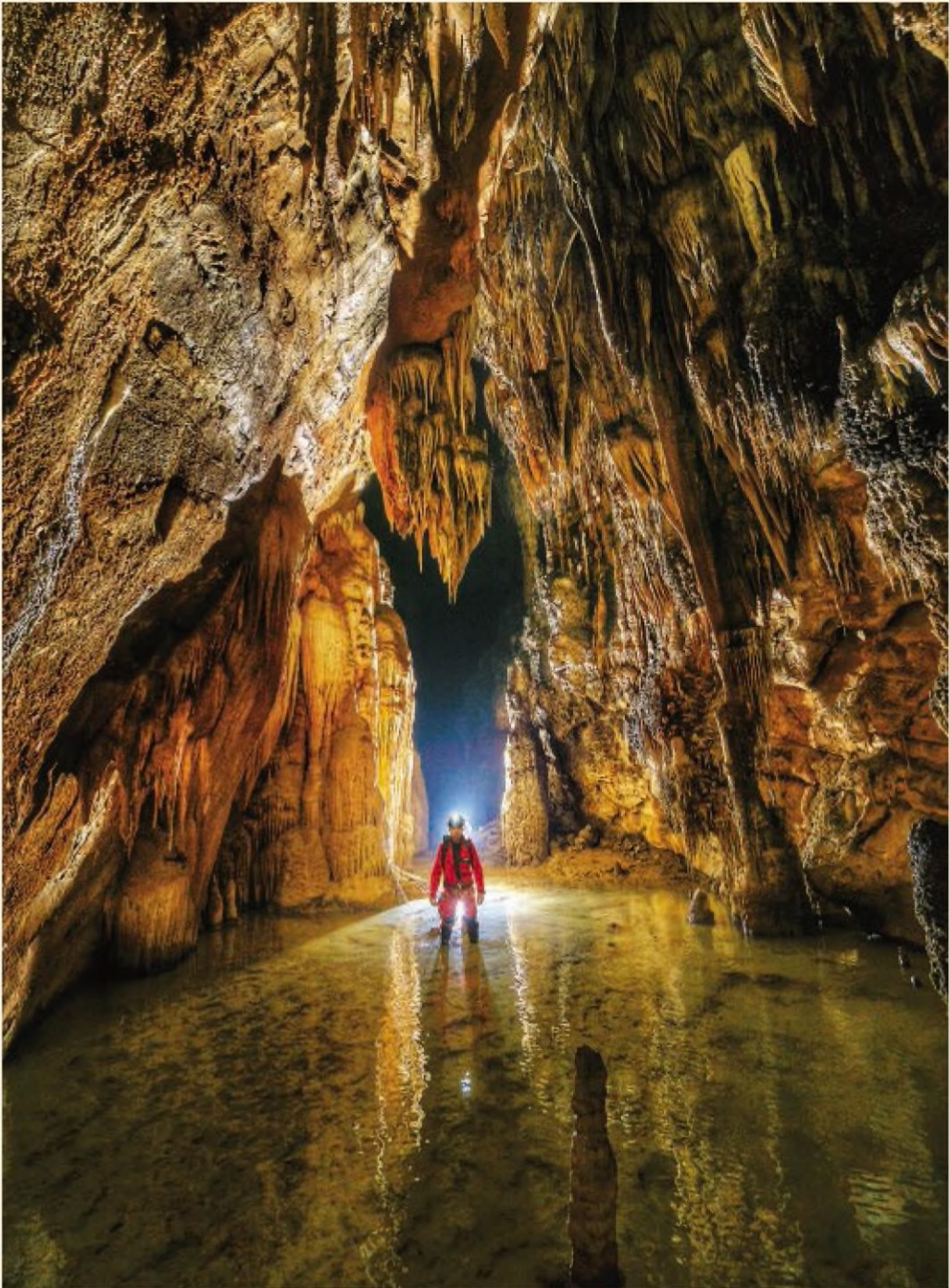
But it took him time, literally, to find his feet. In the beginning he had to conquer vertigo and nausea. "First, you need to learn not to be a burden on the team, as well as how to install equipment and where to go in the unknown territory of a cave," Mr Zhou said.

"Safety is of the utmost importance, and every team member has to receive rigorous training and learn to deal with the extreme environment and accidents that might occur at any time."

Mr Zhou also picked up knowledge about caves, from rock formations to the changeable conditions underground, such as temperature and humidity levels.

"One needs to know the formation process of what's inside a cave, and its different characteristics during dry and rainy seasons."

Moreover, spelunkers also have to protect the



cave they enter. No food or batteries can be left behind. Take nothing but memories.

"It takes a long time for cave sediments to form, and I would rather give up a photo if taking it would undermine the existing cave structure," Mr Zhou said.



Clockwise from left: Zhou Yuanjie and his teammates explore a tunnel behind a waterfall at Yangpi Cave, Guiyang city, Guizhou province, in January last year. Mr Zhou goes cave diving with his teammates in Tangbian village, Qingzhen city, Guizhou, in November 2019. Mr Zhou photographs a cliff climbing competition in Zhongshan district, Liupanshui city, Guizhou, in August last year.

PHOTOS PROVIDED TO CHINA DAILY

Niudong Cave at the junction of Qingzhen city and Zhiijin county, Guizhou.

"The cave was like an alien planet, with its strange and complex geological environment, and I had to feel my way around by climbing and crawling," Mr Zhou recalled.

When he came out, he was covered in mud.

The trip also offered Mr Zhou an opportunity to hone his spelunking skills, such as using a number of tools to move around the cave and taking pictures in the process.

"It's very important to get everything in and out safely," he said, adding that a slip-up might cause a tool to fall on teammates who may be hundreds of metres below him.

As his skills grew, Mr Zhou joined a China-France team in 2014 and visited the Miaoting Cave, categorised as the biggest of its kind, by volume, in the world. It was jointly detected by Chinese and European scientists. Experts theorise that it is capacious enough that a Boeing 747 passenger aircraft could fly in it.

"The road to the cave is etched with gullies of differing heights, which is typical of the karst landform in Guizhou," Mr Zhou said. They are the first challenge spelunkers have to face.

"The ground is covered with green moss and is very slippery," he said. "You have to be there to see just how big the cave is."

Over the years Mr Zhou has made nine trips through different entrances to access the Miaoting Cave.

Desire for more adventurous spelunking drove him to master technical diving and underwater photography.

He also became a dive master certified by the world's leading scuba diver training organisation, the Professional Association of Diving Instructors, whose headquarters is in California.

To date, more than 6,000 caves have been located across Guizhou, and about 2,000 have been explored, said Qian Zhi, vice-president of the Guizhou Cave Association, which is affiliated to the mountain resources research institute of Guizhou Academy of Sciences.

About 200 caves in the province have been tapped for various purposes, such as for developing tourism.

The Shuanghe Cave in Wenquan town of Zunyi city and Zhiijin Cave in Zhiijin county, in Guizhou, have both evolved into tourism hot spots, creating job opportunities and a marked increase in local income, Mr Qian said.

The consistent temperature has also made the caves ideal places for growing things such as mushrooms or storing food and other supplies.

"Of course, all those things need to be done under long-term supervision and analysis," Mr Qian said.

Survival of a species

By SHEN WENDI

A small herd of milu deer — six males and four females — paces back and forth uneasily at the entrance of a shelter in Nanhaiizi Milu Park in Daxing district beyond the South Fifth Ring Road of Beijing.

After a few minutes' hesitation, the leading milu, puffing in trepidation, finally steps out and leads the rest of the deer along a wire-fenced passageway set up by researchers at the Beijing Milu Ecological Research Centre that leads to a truck.

On December 7 the vehicle took them to East Dongting Lake National Nature Reserve in Hunan province, Central China, which is to be their new home. They were relocated to enrich the gene pool of the milu herd in the nature reserve.

Also known as Pere David's deer, milu are native to China, where they roamed on the marshes and plains along the Yellow River and the Yangtze River. But due to hunting and the loss of their natural habitat, their population dwindled to about 200 during the Qing Dynasty (1644-1911), when the last of the species could be found at Nanhaiizi, which was then the royal hunting park.

The deer, which combine the features of a horse's face, a donkey's tail, a cow's hooves and a stag's antlers, were viewed as auspicious in Chinese mythology, but fortune did not smile on the milu and the species died out in the country in the early 1900s.

Fortunately, a French missionary named Pere David introduced the deer to France in 1866. Later, a few more were transported to other European countries.

However, the scattered migrants did not fare well in Europe, until Duke Herbrand Russell managed to gather 18 milu at Woburn Abbey, England, in 1898. Finally, they found a sanctuary.

Beijing Milu Ecological Research Centre was founded in 1985 with the aim of reintroducing milu to China. From 1985 to 1987 joint efforts brought 38 milu back to Nanhaiizi Milu Park.

In 1986 Milu Natural Reserve in Dafeng, Jiangsu province, was founded, bringing another 39 milu from England. Together, these 77 milu laid the foundation for the restoration of the species in China.

As their number in China increased, more nature reserves were established in areas that they were known to once inhabit. Today they can be found in 81 areas throughout China, their number having grown to more than 8,000 over the 35 years since their return.



A fight between two male milu over the right to mate. PROVIDED TO CHINA DAILY

Notably, they have formed wild groups independent of the protection of human beings.

When huge floods in 1998 destroyed the fences in Shishou Nature Reserve, north of the Yangtze River, more than 30 milu swam across the river. They found a new home near East Dongting Lake where they formed what became the first wild herd of milu.

As a species adapts to a new environment, it gradually develops certain genetic features, keeping the useful traits and eliminating the bad ones. If members of the same species from different locations interbreed, it enriches their genetic diversity and reduces the possibility of disease.

This is why the milu from Nanhaiizi are being taken to East Dongting Lake, said Bai Jiade, director of the Beijing Milu Ecological Research Centre.

The centre has sent 546 milu to 41 nature reserves across the country since 1989.

"There are more than 8,000 milu in China now," Mr Bai said. "To have milu from Beijing integrate into the wild groups in other places is an important way to help protect the species."

The 10 milu that were transported to East Dongting Lake this time consists of both young and elderly deer. In the summers to come they will compete for leadership and mates.

They have no idea of the plan laid out for them. The 30-hour trip has made them sullen and tired.

As the truck drives into the reserve, they perk up after smelling the marsh.

What awaits them is a broad field of 190 hectares (470 acres) with abundant water, grass and sedges, more than 200 bird and plant species, and others of their kind.

Getting off the truck, they take a short break in a shelter. The moment the fences open, they bounce out and break into a trot, vanishing into the reeds. But this is not the end of their story.

Soon they will be put to the test. A waterproof GPS collar is attached to each of them that will enable the researchers to observe.

In the coming decades researchers will further analyse the behaviour and evolution of the species with genetic tools, and their influence on the ecosystem as a flagship wetland species.

Changed vocation gives children a voice

By LI YINGXUE

Zhang Ying, 23, could have been a TV news presenter after four years studying broadcasting and hosting talk shows at Shaanxi University of Science and Technology. So could Du Xintong, who is one of her senior school classmates. However, instead of becoming talking heads on TV, the pair decided to implement their knowledge of public speaking and enunciation to help millions of children with speech disorders.

Graduating from college and receiving her national speech therapist certificate in 2019, Ms Zhang is pursuing a career as a speech therapist.

She and Ms Du met in 2016 after being teamed together during a period of volunteer work during the summer break.

When they were researching topics for their social work project, they discovered that many children who have had surgery to repair a cleft lip are in need of speech therapy.

Following that fortuitous meeting, they co-founded Voice Changer, which offers language rehabilitation for teenagers in China through online and in-person service platforms.

The organisation won the 2019 New Generation Entrepreneurship Venture Competition, among several other prizes.

In December, the pair was crowned champions of China and made the world top 12 at the She Loves Tech international entrepreneur competition.

More than 1,000 families have received speech therapy from Voice Changer, and the team now aims to train more speech therapists, drawn from college volunteers, to help more children with speech disorders across the country.

"The surgical repair of a cleft lip is just one step," Ms Zhang said. "The children need more speech training after that, especially on how to make and perceive sounds, which is based on phonetics. As phonetics was part of the syllabus during our major, we thought we could use our understanding of the subject to help."

After some basic training on physiology and pathology from doctors at a local hospital, Ms Zhang and other team members hosted a four-day training course at the hospital for seven children with speech problems.

Some of the children have articulation disorders, such as sound errors with glottal stops — the sounds produced by obstructing airflow in the vocal tract. Children who have a problem doing that can make it sound like the child is omitting a consonant. For instance, when they say "ball", it may sound like "all".

Ms Zhang remembers a father's joy when a 4-year-old boy, after some intensive training,

was finally able to clearly enunciate the word *baba*, meaning dad, for the first time in his life.

"That moment inspired us so much that we felt like we could really help other people, and bring hope to their families, so after the summer practice we decided to start the project," Ms Zhang said.

After graduating in 2018, Ms Du decided to make the project a full-time endeavour, and Ms Zhang followed a year later.

Yan Si, 29, met Ms Du at an entrepreneur competition in 2019 and she was so moved by Ms Du's programme that she joined the team.

To further develop the programme, the women founded the company and, in August 2019, they opened their speech language learning studio in Shanghai.

Each child needs to finish at least one three-month course, which consists of three 40-minute sessions a week, Ms Zhang said. The length of the overall programme is dependent on each child's condition after evaluation.

"When we are teaching in-person courses, the parents cannot accompany their children," she said. "The children may feel a bit nervous in a strange environment, but they soon get used to it and start to enjoy the training."

"They have different speech disorders: some may suffer from a functional disorder, some may have language issues, and some are autistic children who choose not to talk"

Ms Zhang said in training children with autism, Voice Changer works with partners from

another institute. "We need specialists to work with them on their willingness to communicate and interact, then we can offer our training on the speech itself"

Voice Changer also launched a mini programme on WeChat that provides online services for families of children with speech disorders. With this, parents can upload their child's information and recordings to the self-testing tool and obtain a report. As well as online speech therapy, there are online courses for parents, including guidance for speech therapy at home.

Ms Zhang said that even though online courses lack some interaction with children, they enable them to help more children outside Shanghai.

Ms Yan said Voice Changer receives government subsidies as a way of supporting children from low-income families.

According to the 2019 annual conference report of the Chinese Speech-Language Hearing Association, there are only 10,000 speech therapists in China, many of whom are not full-time, Ms Yan said.

Unlike common volunteer work, to be a speech therapist volunteer, complex training is required before services can be offered.

"Speech therapy is a complex subject that requires knowledge including training in education, psychology, linguistics, physiology and pathology," Ms Yan said, adding that Voice Changer has developed a training system for volunteers to grow into professional speech therapists.



The Voice Changer team teaches a child with a speech disorder. PROVIDED TO CHINA DAILY

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